

We claim:

1. An RFID device for processing items having an RFID element and a magnetic security element associated therewith, comprising:
  - (a) an RFID interrogation source for interrogating and obtaining information from the RFID element; and
  - (b) a magnetization system for performing an appropriate magnetization operation on the magnetic security element in response to the information obtained from the RFID element.
2. The RFID device of claim 1, wherein the device determines the appropriate magnetization operation directly in response to information obtained from and contained within the RFID element itself.
3. The RFID device of claim 1, wherein the device determines the appropriate magnetization operation after the information obtained from the RFID element has been compared to information in a database separate from the RFID element.
4. The RFID device of claim 1, wherein the device is adapted to provide an indication that an item is a specific type of item.
5. The RFID device of claim 2, wherein the device is adapted to perform no magnetization operation in response to the information obtained from the RFID element.
6. The RFID device of claim 1, wherein the device further comprises an optical bar code scanner.
7. The RFID device of claim 6, in which information obtained by the optical bar code scanner may be written to an RFID tag to be associated with the item.
8. The RFID device of claim 1, wherein the device further comprises a computer.

9. The RFID device of claim 8, wherein the computer is adapted to operate library automation vendor software for managing the flow of materials into and out of a library.

10. The RFID device of claim 1, wherein the RFID interrogation source interrogates and obtains information about the RFID element regardless of the orientation of the RFID element relative to the interrogation source.

11. A method of performing a magnetization operation on a magnetic security element associated with an item, comprising the steps of:

(a) interrogating an RFID element associated with that item to obtain information;

(b) using the information to determine the type of item with which the RFID element is associated; and

(c) performing an appropriate magnetization operation on the magnetic security element based on the type of material with which it is associated.

12. The method of claim 11, wherein the item comprises magnetically-recorded media, and the magnetization operation is the application of a magnetic field to the magnetic security element that is sufficient to activate or deactivate the element without damage to the magnetically-recorded media.

13. The method of claim 11, wherein the appropriate magnetization operation is the absence of magnetization.

14. A method of processing a set of associated items each having an RFID element, comprising the steps of:

(a) interrogating each of the items to obtain information including the identity of the item;

(b) interrogating an RFID element that is associated with the set of associated items;

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(c) comparing the information obtained in step (a) with the information obtained in step (b) to determine whether the associated items are presented together.

5           15. The method of claim 14, wherein the method further includes the step of:

(d) determining whether other items are included with the associated items that are not members of the set of associated items.

10           16. The method of claim 14, wherein the method further includes the step of:

(d) determining whether any of the associated items are missing from the set.

15           17. The method of claim 14, wherein the method further includes the step of:

(d) performing a magnetization operation on magnetic security elements associated with the items.

20           18. A method of processing multiple items each having an RFID element, comprising the steps of:

(a) presenting more than one of said items to an RFID reader;

(b) obtaining information from the RFID elements approximately simultaneously; and

25           (c) using the information obtained from the RFID elements to determine whether different types of items are among the items presented.

          19. The method of claim 18, wherein the method further includes the step of:

30           (d) providing an indication to a user that different types of items are among the items presented.

          20. A method of processing multiple items having an RFID element, comprising the steps of:

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- (a) presenting more than one of the items to an RFID reader;  
(b) obtaining information from the RFID elements approximately simultaneously;  
(c) detecting the number of RFID elements presented;  
5 (d) automatically processing the items when only a predetermined number of items have been detected.

10 21. The method of claim 20, wherein the processing step comprises performing an appropriate magnetization operation on magnetic security elements associated with the items presented to the RFID reader.

15 22. The method of claim 20, wherein the processing step comprises updating a database that includes information as to the items presented to the RFID reader.

20 23. A method of processing multiple items having an RFID element, comprising the steps of:

- (a) presenting more than one of the items to an RFID reader;  
(b) obtaining information from the RFID elements approximately simultaneously;  
(c) detecting the number of RFID elements presented;  
(d) displaying the number of RFID elements detected to a user; and  
(e) permitting the user to direct that the items be processed.

25 24. The method of claim 23, wherein the processing step comprises performing an appropriate magnetization operation on magnetic security elements associated with the items presented to the RFID reader.

30 25. The method of claim 23, wherein the processing step comprises updating a database that includes information as to the items presented to the RFID reader.

Sub C57 26. A hand-held RFID device, comprising as an integrated unit:

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- (a) a computer;  
(b) an antenna to transmit commands between an RFID tag and an RFID reader;  
(c) an RFID reader for reading information from multiple RFID elements substantially simultaneously; and  
(d) a display.

27. The hand-held RFID device of claim 26, further comprising:  
(d) an RFID writer for transmitting information to an RFID element for storage therein.

28. The hand-held RFID device of claim 26, further comprising:  
(d) a data transfer system for transferring data from the RFID device to a separate database.

<sup>4</sup>  
~~29~~. The hand-held RFID device of claim <sup>3</sup>~~28~~, wherein the data transfer system comprises a connection for operatively coupling with a docking station.

<sup>5</sup>  
~~30~~. The hand-held RFID device of claim <sup>3</sup>~~28~~, wherein the data transfer system comprises a cabled data transfer connection.

<sup>6</sup>  
~~31~~. The hand-held RFID device of claim <sup>3</sup>~~28~~, wherein the data transfer system comprises a wireless data transfer system.

<sup>7</sup>  
~~32~~. The hand-held RFID device of claim <sup>1</sup>~~26~~, wherein the device includes an integral power source.

<sup>8</sup>  
~~33~~. The hand-held RFID device of claim <sup>1</sup>~~26~~, wherein the computer is a detachable hand-held computer.

<sup>9</sup>  
~~34~~. The hand-held RFID device of claim <sup>8</sup>~~33~~, wherein the computer includes a power source separate from the source of power for the remainder of the device.

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35. The hand-held RFID device of claim 33, wherein the detachable hand-held computer comprises a connection for operatively coupling with a docking station.

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36. The hand-held RFID device of claim 26, further comprising:

(d) an information input system for providing information to the RFID device other than by radio frequency interrogation.

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37. A method of using a portable RFID device, comprising the steps of:

(a) inputting information to the device describing a certain item or class of items each having an RFID element; and  
(b) scanning a plurality of items to determine whether the certain item or items are present.

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38. The method of claim 37, wherein the information is selected from information describing missing items, items that have not been used within a specified period of time, items that have not been checked into inventory, items that have been designated for hold status, and the owner of the items.

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39. The method of claim 37, wherein the information is contained within and available from the RFID element itself.

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40. The method of claim 37, wherein the method further includes the step of:

(c) providing an indication in real time to a user that the item or items of interest were located.

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41. The method of claim 40, wherein the method further includes the step of:

(d) recording in a database that the item or items of interest were located.

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42. A method of using a portable RFID device, comprising the steps of:  
(a) inputting an algorithm to the device that describes an ordered set of items;

(b) scanning a plurality of items having RFID elements to obtain information from those elements; and

(c) comparing a description of the items obtained using the information obtained from the RFID elements to the algorithm to determine whether the scanned items are in the algorithm order.

43. The method of claim 42, wherein the method further comprises the step of:

(d) providing an indication to a user of any item that is not in the algorithm order.

44. The method of claim 43, wherein the indication is provided in real time;

45. The method of claim 43, wherein the indication is provided in response to information obtained from a database separate from the RFID device and the RFID tag.

46. The method of claim 42, wherein the algorithm is based on an ordering system that is selected from the Dewey Decimal System, the Library of Congress System, an alphabetical listing of authors, and an alphabetical listing of topics.

47. A method of using a portable RFID device to associate an item bearing an RFID element with a location, comprising the steps of:

(a) scanning the RFID element associated with the item;

(b) inputting information to the device to describe the location; and

(c) associating the item with the location in a database.

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48. The method of claim 47, wherein the location has a separate RFID element, and step (b) comprises scanning the RFID element associated with that location.

5           49. A method of using a portable RFID device to associate a certain item bearing an RFID element with a location having a group of items of a similar type each also bearing an RFID element, comprising the steps of:

- 10           (a) scanning the RFID element associated with the item;  
            (b) scanning the RFID elements of at least one additional item within the group of items;  
            (c) determining whether the certain item belongs with the group of items.

15           50. The method of claim 49, wherein the method further comprises the step of:

- (d) providing an indication of the determination made in step (c) to the user in real time.

20           51. A method of using a portable RFID device, comprising the steps of:

- (a) obtaining an item having an RFID element associated therewith;  
            (b) using the portable RFID device to interrogate the RFID element and obtain information therefrom; and  
            (c) inputting information to the RFID device as to that item by other than RFID interrogation.

25           52. The method of claim 51, wherein the method further includes the step of:

- (d) using the information input in step (c) to update a database that includes information as to that item.

30           53. The method of claim 52, wherein the database is updated when the portable RFID device is connected to a docking station to download information to that database.

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54. A method of using a portable RFID device with an item having an RFID element associated therewith, comprising the steps of:

- 5 (a) interrogating the RFID element with the RFID device to obtain information therefrom;
- (b) identifying the item using the information obtained; and
- (c) requesting from the portable RFID device further information regarding the item.

10 55. The method of claim 54, wherein the information requested in step (c) is obtained from memory contained within the portable RFID device.

15 56. The method of claim 54, wherein the information requested in step (c) is obtained from memory that is separate from the portable RFID device and is transferred to the device.

57. A method of using an RFID device, comprising the steps of:

- 20 (a) interrogating a group of items each bearing an RFID tag;
- (b) providing to the RFID device information identifying a certain class of items; and
- (c) receiving in real time from the RFID device an indication of items that are not within the certain class of items.

25 58. The method of claim 57, wherein the class of items are items associated with a particular location, and the information provided in step (b) includes that location.

59. A method of using an RFID device with items of interest that bear an RFID tag, comprising the steps of:

- 30 (a) interrogating the tagged items with the RFID device; and
- (b) entering information into the RFID device describing the location of the item of interest.

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60. The method of claim 59, further comprising the step of:  
(c) collecting in a database the information entered in step (b) regarding the items of interest.

5 61. The method of claim 60, wherein the database is contained within the RFID device.

10 62. The method of claim 60, wherein the database is separate from the RFID device, and the information is transferred to that database.

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